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ERRATA.

Page	12, fig.	7, for	<i>baxtoni</i>	read	<i>buxtoni</i>
"	13, line	3, "	Kantora	"	Kantara.
"	16, "	4, "	E d'Emmerez	"	<i>D. d'Emmerez.</i>
"	36, "	44, "	<i>calacitrans</i>	"	<i>calcitrans</i>
"	44, "	5, "	<i>Haplogonotopus</i>	"	<i>Haplogonatopus.</i>
"	87, fig.	11, "	<i>quirti</i>	"	<i>quiarti.</i>
"	103, line	5, "	Vol. iii.	"	Vol. vii.
"	104, "	18, "	<i>Pseudococcus</i>	"	<i>Pseudococcus.</i>
"	105, lines	13 & 19, for	<i>Pseudococcus sacchari</i> , Newst.,	read	<i>Pseudococcus sacchari</i> , Ckll.
"	108, line	32, for	<i>Coccus</i>	"	<i>Cocos.</i>
"	118, "	35, "	<i>C.</i>	"	<i>P.</i>
"	126, "	1, "	<i>aegyptiacum</i>	"	<i>aegyptiaca.</i>
"	129, "	27, "	<i>Aranthemum</i>	"	<i>Eranthemum.</i>
"	131, "	30, "	<i>Heavea</i>	"	<i>Hevea.</i>
"	"	38, "	<i>pseudaonidia</i>	"	<i>Pseudaonidia.</i>
"	136, "	19, "	<i>Aedeomyia</i>	"	<i>Aedomyia.</i>
"	157, "	5, "	<i>Horzog</i>	"	<i>Herzog.</i>
"	185, "	53, "	<i>pinniformis</i>	"	<i>pinnaeformis</i>
"	187, "	13, "	<i>sulphurea</i>	"	<i>sulfurea.</i>
"	210, "	4, "	<i>inflexus</i>	"	<i>inflexus.</i>
"	212, "	18, "	<i>visted</i>	"	<i>visited.</i>
"	221, "	37, "	<i>Out</i>	"	<i>with.</i>
"	236, "	5, "	van	"	von.
"	243, "	21, "	dipterologist	"	hymenopterologist.
"	256, "	25, "	<i>rupelli</i>	"	<i>rüppelli.</i>
"	267, "	16, "	Roder, H.	"	Röder, H. von.
"	238, line 7 ; 244, line 36 ; 248, line 30 ; 249, line 29, and 250, line 7, for "Zahrb,"	read "Jahrb."			

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1917.

OBSERVATIONS ON SCALE-INSECTS (COCCIDAE)—IV.

By ROBERT NEWSTEAD, F.R.S.,

The School of Tropical Medicine, the University, Liverpool.

Llaveia abrahami, sp. nov.

Female, adult. Ovate, strongly gibbose above and flattened beneath; segmentation both on the dorsum and venter distinct. Colour, in alcohol, buff-yellow; with a thin deposit of white secretion in the hollows between the segments; legs and antennae yellowish brown. It is highly probable that much of the secretion had disappeared in the alcohol in which the specimens were preserved. Antennae of eleven segments, 2nd and 11th longest; 3rd a little shorter than the latter, but much longer than the succeeding ones, which are submoniliform in shape; average length 0.8–0.9 mm. Legs relatively short; tarsi a little more than half the length of the tibiae; front pair shortest, measuring 0.85 mm.; posterior pair longer, measuring 1–1.1 mm.; hairs relatively long and slender; claws simple, though in one example two of these organs have a well-marked tooth-like projection *dorsally*, just above the curved tip. Derm both dorsally and ventrally rather thickly set with very short fine hairs; margin with a narrow band of long fine hairs, the longest of which measure 0.6–0.7 mm. Pores dorso-ventrally relatively very small, circular and with beaded rims; these are less numerous than the fine hairs; those at the margins are slightly larger, much more numerous, and many have clear triangular-shaped centres. Anal segment of abdomen with three large ovate rings, the central one being slightly the largest and measuring about 0.2 mm. in its longest axis. Length, after maceration in KOH, 8–9 mm.

Larva. Very like those of the genus *Icerya*. Marginal hairs of great length, those in the abdominal region measuring 0.7–0.8 mm. There are four pairs of very long caudal hairs, the median pair slightly the longest, measuring 1.1–1.2 mm. Antennae of six segments; terminal segment with many hairs, of which six to seven are much the longest, the longest measuring 0.5 mm. Derm rather thickly set with long fine hairs and numerous pores similar to those in the adult but relatively larger. Legs

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hairy; digitules long and slightly dilated, upper pairs wanting; claws slender, with a distinct ventral tooth near the tip. Eyes prominent and somewhat hemispherical. Length, 0.9-1 mm.

BRITISH GUIANA: Issororo, N.W. District; "inhabiting indentations in the bark of a rubber-producing tree (*Sapium jenmani*); attended by ants which construct coverings over the Coccids," 3.vi.15 (A. A. Abraham, per G. E. Bodkin).

Differs from *L. primitiva* (Townsend) in its larger size, the number of antennal segments, and the absence of spines on the legs.

***Llaveia primitiva* var. *pimentae*, nov.**

Female, old adult. Dried example (1 only) elongate-ovate, highly convex dorsally, hollow ventrally, the latter character almost as marked as in certain species of the genus *Lecanium*; segmentation of the abdominal region fairly distinct above; the cephalo-thoracic region with a faint median keel, not extending to the front margin. The whole of the body clothed with a dusky white, farinaceous secretion, which is denser in the hollows of the abdominal segments, the irregular depressions of the thoracic area, and the hollow ventral surface; the last-named also containing a small quantity of pure white flocculent matter, in which were found two dead larvae. Antennae of nine segments; formula: 9, 1 (or 1, 9), 3, 2 (or 2, 3) (4, 5) (6, 7, 8), all the segments longer than wide; length twice that of the anterior femur plus trochanter, or slightly more. Legs (anterior pair) relatively short; femora incrassate, equal in length to the upper portion of the tibiae, the latter nearly one and a half times the length of the tarsi and furnished ventrally with nine to ten long slender bristles; claws smooth on the under surface. Integument dorso-ventrally rather densely clothed with long stout bristles, and almost as thickly beset with circular "rosette" pores; marginal hairs much longer and denser than those seen elsewhere, more especially so are they on the abdominal segments. Venter, near the distal extremity, with three large oval rings. Length (after maceration in KOH), 5.5 mm.

Female, young adult. Similar to the preceding, but with the marginal hairs very long, the longest of them equalling the length of the antennae. The only example has the antennae asymmetrical: one of ten segments with a partial division of the 4th, the other of seven segments only.

Female, second stage. Shape similar to that of the old adult, but less than half the size. Dorsum with or without a median ridge; completely covered with a dense, pale yellowish-white secretion; segmentation faintly indicated. Antennae variable, and in two examples asymmetrical, of eight or nine segments. Integument much more densely hairy than in the adult; marginal hairs as in the young adult female. Length, 2.8-3.2 mm.

Larva (fully developed). Short ovate. Marginal hairs long and continuous in front; the longest of those on the cephalic margin longer than the antennae. Caudal hairs in four pairs, of which the median pair is the shortest and less robust than the others, the longest hairs three-fourths the length of the body. Antennae with seven long hairs, the longest of which is nearly equal in length to the antennae. In the embryo larvae, taken from the body of the parent, the integument appears more

densely hairy than in the fully developed larva, owing apparently to the somewhat contracted nature of the integument. This applies also to the pores in the two stages respectively.

JAMAICA: on Pimento (*Pimenta officinalis*, Lindl.), 1916; "attended by the so-called 'stinking-ant,' *Cremastogaster* sp., and to be found under the loose bark; not of great importance." (*A. H. Ritchie*).

This may possibly prove to be Townsend's *Llaveia primitiva*, the slight differences being possibly due to the age of the individuals. Probably the normal number of antennal segments will prove to be ten. More material is needed.

***Monophlebus ? hirtus*, Brain.**

Brain* in his brief description of *Monophlebus hirtus* states that "the dermis is closely crowded with slightly clubbed glandular hairs and occasional long hairs, the latter fitting into thickened sockets," these characters being the salient features of the species. In the only specimen I have before me, the derm, more especially at the margin, is crowded with stout, blunt, curved spines (fig. 1, *b*), which, though

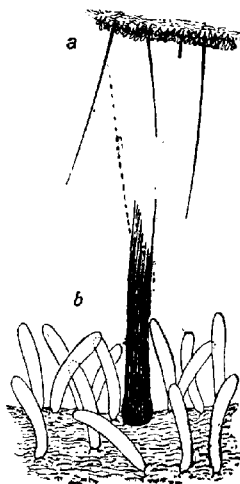


Fig 1. *Monophlebus ? hirtus*, Brain, ♀;
marginal spines and hairs.

slightly narrowed proximally, can scarcely be said to be club-shaped. Before my example was passed through the various reagents and mounted in Canada balsam, the margin was seen to be broadly set with long and very stiff hairs (fig. 1, *a*); but these were so easily deciduous and brittle that the majority of them broke away in the preparation. Length, 7.2 mm.

NYASALAND: Mt. Mlanje, 1913 (*S. A. Neave*).

* Trans. R. Soc. S. Africa, v, p. 165 (1915).

***Aspidoproctus neavei*, sp. nov.**

Female, adult. Ovale, sides elevated and more or less concave; dorsum in front relatively low; abdominal region highly convex. Cephalic or frontal depression well marked. Marginal dentate appendages long, rectangular, widely separated and ivory-like in colour and texture; there are about 25 of these altogether. Submarginal series of processes on the *anterior half of the body* (four to five in number) not quite so long as the marginal ones, but more robust and often irregularly dentate; the abdominal series, in continuation, diminishing in size distally. In the median line in front is a pair of small processes and behind them two to three *large single* ones. Midway between the median and submarginal processes are three very deep pits or depressions. Cavities and hollows coated with creamy white, granular secretion. Colour pale to dark castaneous; dull orange-crimson in alcohol; lower

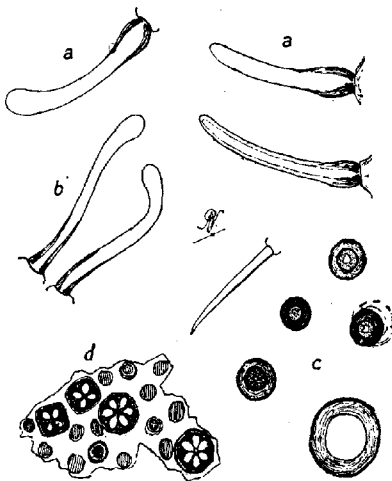


Fig. 2. *Aspidoproctus neavei*, Newst., sp. n., ♀;
a, spines of gland tracts; b, marginal spines of
lip of marsupial opening; c, pores;
d, pores
at angle of marsupial opening.

surface paler. Secretionary operculum relatively small compared with the size of the insect; it is normal in shape and of a dark brown colour. Antennae of ten segments; 3rd to 7th inclusive broader than long; 9th and 10th much the narrowest, being about half the width of the 6th, the 10th equal in length to the 6th, 7th and 8th, inclusive; 2nd nearly twice the length of the 4th; formula: 10, 1, 2, 3, 9 (6, 7, 8), (4, 5); two kinds of hairs present, subspinose forms and simpler slender ones; the longest of the latter equal in length to the terminal segment, and measuring 1.75 mm. Spines of the gland-tracts (fig. 2, a) incrassated proximally, apex bluntly pointed or sometimes slightly dilated; those of the proximal lip of the marsupial opening (fig. 2, b) generally curved and more or less spathuliform; elsewhere, both dorsally and ventrally, the spines are simple and more or less acutely pointed. Giandular

pores (fig. 2, c) circular; some apparently with compound openings others with a triangular, quadrangular or circular openings. Length, 15.5–21 mm.; width, 12–15 mm.; height, 6–9 mm.

Female, second stage. Ovate, sometimes slightly narrowed anteriorly; posterior half of margin rather broadly produced or flattened; dorsum convex. Marginal dentate processes similar to those in the adult but smaller. Dorsum without dentate processes and, with the exception of the rubbed portions, covered with granular secretion. Dorsal glandular pores circular, with four openings. Glandular pores at the angles of the marsupial opening (fig. 2, d) of three types; a relatively small form of somewhat variable shape, a large form with six openings, and a roughly quadrate form with four openings. These glandular orifices in the old adults become more or less obscure owing to the density of the chitin.

NYASALAND: Mt. Mlanje, on "Mwange" tree, x. 1913 (*S. A. Neave*).

This Coccid differs from *A. pertinax*, Newst., in being less convex (especially in the abdominal region), and in the larger size and arrangement of the dorsal thoracic processes.

***Aspidoproctus verrucosus*, sp. nov.**

Female, adult. Subhemispherical, produced in front, flat beneath; secretory operculum complete. Integument blackish; sparsely clothed with dusky golden pubescence, and punctate between the patches of secretion. Margin with short, tooth-like, contiguous appendages, dusky white in colour, with here and there faint traces of yellow, tips more or less pure white. Frons with two converging rows of similar, but smaller and confluent, processes. Above the last-named in the middle line are three widely separated, transverse rows of very small tooth-like appendages surrounded by dusky granular secretion. Leading from the third group towards the anal margin is a narrowly ovate series of scurfy patches and surrounding them an almost complete circle of similar patches of secretion. Between the various tooth-like processes are other irregular patches of secretion, which collectively give the insect a decidedly warty or more or less mottled appearance. Derm rather densely clothed with relatively long spines, some of which are truncated, possibly owing to injury. The special gland-tracts at the margin of the abdominal area surrounded by a dense wall of spines taking a quadrangular or rectangular form; within these are one or two small groups of circular glands. There are at least three other types of glands on the venter, including a large quoit-shaped one of slightly varying dimensions, these being most conspicuous in the region of legs ii. and iii. Length, 8.5; width, 7.3; height, 5.5 mm.

UGANDA: Ngamba Is., on trunk of a fig tree, 16. v. 14 (*Dr. G. D. H. Carpenter*).

In its general shape this Coccid resembles a very small example of *Aspidoproctus pertinax*, Newst.; but it is otherwise markedly distinct. The mouth-parts and antennae were absent in all the specimens, and were evidently detached when removing the insects from the tree.

***Alaococcus bicolor*, sp. nov.**

Female, adult. Ovate, narrowed in front, covered with short bright yellow or white waxen processes, which are arranged in seven more or less well-defined rows:

one short, median, and three on each side, the lateral rows continuous behind; intervening spaces with somewhat granular wax; margins with outstanding hairs, which appear more numerous and much longer posteriorly. Venter, in the oldest examples, with a relatively thin layer of white wax, but this, in the specimens submitted, does not form a distinct ovisac or pad. Antennae of nine to ten segments; in two instances they were asymmetrical; terminal segment not quite so long as the two preceding ones together; there is a long slender spine on the second, and long stout hairs on the succeeding ones, in addition to which there are two to three very long slender hairs on the terminal segment, one of which is equal in length to the last two segments together. Legs very robust and long. Derm markedly hirsute; spinnerets large, circular and almost as numerous as the hairs. Stigmata relatively small. Margins with immensely long stout hairs, the longest being three times the length of the antennae. Many of the marginal hairs are dilated and frayed distally and sometimes present three distinct, lateral ridges, resembling somewhat the proximal half of the scapula of a mammal in miniature; these are clearly malformations due, possibly, to injury by abrasion. Length, 5.5 mm.-6.5 mm.

Female, second stage. Waxed covering similar to that of the adult, but the median and submedian rows are not so pronounced; colour bright yellow, or rarely pure white. Antennae of seven segments, of which the third and seventh are the longest. Derm sparsely hirsute; pores much fewer than in the adult. Marginal hairs of immense length, the longest and stoutest arising from the abdominal segments; these are, when perfect, four times the length of the antennae, or slightly longer than the entire length of the insect. Length, 2-2.3 mm.

Larva. Antennae with the terminal segment markedly incrassate, with five immensely long, stout, lateral hairs; the largest about twice the length of the antenna. Derm thickly set with fine long hairs; margins with similar but slightly longer hairs; terminal segment of abdomen with three pairs of long hairs, of which the median pair is about half the length of the others; the two pairs of longest hairs three times the length of the antenna, or about one-fourth longer than the body.

GOLD COAST: Aburi, on *Thespesia* sp. (W. H. Patterson).

The general appearance and arrangement of the cereous coverings of the old adults resemble somewhat those of the young adult ♀ of *Icerya seychellarum*, Westw.; but the strongly hirsute character and great length of the marginal hairs may readily serve to distinguish it. That the colour of the waxy covering should vary between bright yellow and white is rather remarkable, but the former, so far as one can judge from the few examples at hand, is the predominant colour. There is no admixture of the two colours in the same individual; all are either entirely white or entirely bright yellow.

***Palaeococcus caudatus*, sp. nov.**

Female, adult. Apparently without any trace of an ovisac; dorsum covered with short stout waxen processes, white or dirty white in colour and thickly felted in texture; these processes are arranged in seven rows: the median row much the broadest and coalescing, more or less; the other rows almost uniform in size

and continuous in front, so that they appear concentric with the median row; the marginal row almost hidden by the submarginal row. A number of long hairs project beyond the waxen covering, especially at the margin in front. Posterior extremity markedly narrowed and with a single long stout waxen appendage or tail-like process. Integument, antennae and legs of dead examples pitchy-black. Antennae of eleven segments and of the usual form found in the females of this genus. Legs normal. Marginal hairs very long, the longest being a little more than one-third the total length of the body; these hairs are much more numerous in front and also posteriorly; at the sides of the body they are arranged in rather widely separated groups. Integument densely studded with relatively large circular spinnerets, interspersed with fine short hairs, the latter much more numerous ventrally. Length, inclusive of waxen appendages, 7-8 mm.; length, exclusive of caudal appendage, 5 mm.

Female, second stage. Dorsum with five rows of white waxen appendages; median row coalescing; submedian and marginal rows much shorter than in the adult female; caudal process similar to that in the adult. Antennae of nine segments; marginal hairs and spinnerets as in the adult, but the former are relatively longer, being about one-half the total length of the body.

UGANDA: Entebbe, on crotons, 13.viii.12 (C. C. Gowley).

The somewhat pyriform outline of the female, with the long stout caudal appendage, should readily serve to distinguish this insect from any of its allies.

***Palaeococcus cajani*, sp. nov.**

Female, adult. Ovate and highly convex. Waxy covering pure white, the arrangement very like that of *Icerya euphorbiae*, Brain,* but more or less distinct processes are traceable; these are arranged as follows: margin with 13-14 short and bluntly rounded processes packed closely together and coalescing behind; immediately above them is a well defined constriction, and over this a ridge with similar but more irregular processes; cephalic extremity with an irregular cluster of blunt processes; the rest of the dorsum denuded by pressure in packing. Colour of integument black. A number of fine hairs protrude through the waxen covering. No ovisac, but a little flocculent secretion beneath the body. Length of dried example, 3.9 mm.

When first placed in chloroform the marginal appendages show up very distinctly and the outstanding hairs are regularly arranged so that a pair of them (one dorsal, the other ventral) form the dividing line between the waxen processes. Colour in this medium, dull orange-crimson. Antennae (fig. 3, *a*) of nine segments; the terminal equal in length to the second and third together; all, with the exception of the last two, broader than long; hairs of two kinds: a relatively short form, which is somewhat spinose, and a very long slender one; the longest on the last three segments, one of which is twice the length of the distal segment. The antenna on the opposite side has the articulations of the third and fourth segments very faintly indicated. Legs with the femora very broad; tibiae and tarsi with slender hairs of varying lengths. Derm scantily clothed with hairs; pores (fig. 3, *b*)

* Trans. R. Soc. S. Africa, V, p. 167, pl. xxii, fig. 48.

circular, presenting the characteristics shown in the illustrations according to the plane in which they are focussed. Marginal hairs very long; one of the longest, just behind the antennae, about one-fourth longer than the latter, or about half

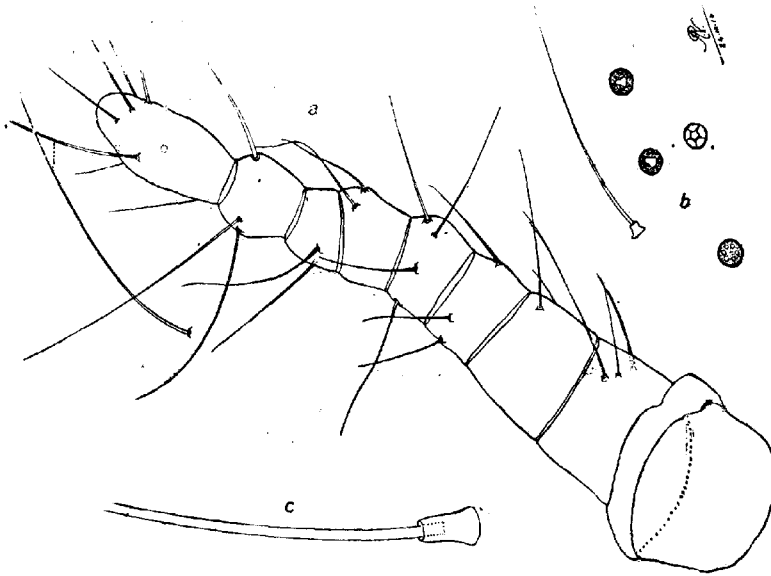


Fig. 3. *Palaeococcus cajani*, Newst., sp. n., ♀: a, antenna: b, gland pores; c, base of dermal hair.

the width of the body; these structures are readily deciduous and very few are left intact in mounted material.

S. NIGERIA: Agege, on pigeon pea, 1914 (*Dr. W. A. Lamborn*).

***Icerya nigroareolata*, sp. nov.**

Female, adult. Secretionary covering and appendages very like those of *Icerya aegyptiaca*, Douglas, but the flocculent matter beneath the appendages is thicker. When macerated in KOH the females assume a very elongate form, thus differing materially from *I. aegyptiaca*, which is *broadly ovate*. Antennae of eleven segments; fourth the shortest and broader than long; eleventh longest and twice the length of the tenth; hairs very long and for the most part arranged in whorls, the longest hairs (terminals) being slightly longer than the two last segments together; formula 11 (2, 3) (7, 8, 9, 10), 1, 4, or 11 (2, 3, 7, 8, 9, 10), 1, 4. Legs robust; hairs on the upper surface of the tibiae very long, the longest being equal in length to the tarsi (fig. 4, a); digitules simple. Marginal hairs relatively short, the longest arising from between the antennae and also at the anal extremity; some of the former about half the length of the antennae. Derm rather sparsely hirsute. Pores or spinnerets (fig. 4, b) of two types: one large, with an inner hexagonal

border; the other less than half the diameter of the former, with a beaded margin; the large ones are generally distributed over the dorsum and also form large triangular groups along the margin of the abdomen. Venter with three large vaginal discs or areoles, the laterals (fig. 4, c) reniform, the median one ovate, with a faint central transverse division or constriction; these, if maceration is not carried too far, are seen to be completely covered with opaque black pigment; when the pigment is partly removed a finely reticulated surface is visible, but when completely removed the reticulation may disappear almost completely. Length of macerated specimens, 5-6 mm.; width, 2.50-3 mm.

Larva. Very elongate. Gland pores or spinnerets as in the adult; arranged in regular transverse rows, the larger ones preponderating, the smaller ones confined chiefly to the median line. Terminal segment of the antennae with three long hairs, the longest being one-fourth longer than the antennae; the remaining hairs are also very long, but less than half the length of the longest. Marginal

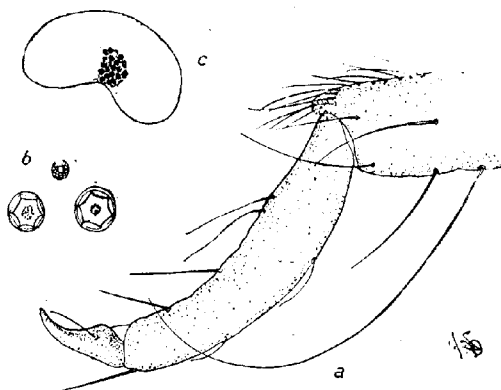


Fig. 4. *Icerya nigroareolata*, Newst., sp. n., ♀; a, tarsus; b, gland pores; c, lateral areole, with portion of pigmented surface.

hairs very long, the longest of the abdominal ones nearly as long as the antennae; the long caudal hairs six in number, three on either side of the anal orifice; two are very long, being almost as long as the body, the third a little more than half the length of the others. Length, 0.9-1 mm. Length of antennae, 0.4 mm.

UGANDA: Kampala, on coffee, 4.xi.13 (C. C. Gowdey); Jinja, on croton, 1914 (Dr. R. Van Someren).

***Icerya sulfurea* var. *pattersoni*, nov.**

Female, adult. Waxy covering bright pale yellow; covering of the dorsum imperfect, but that which remains is suggestive of short stout plates; marginal series of waxy appendages long, broad, curved downwards and slightly curled distally. Ovisac well defined; colour, white or white with a faint tinge of yellow. Derm faintly hirsute, but thickly studded with minute hairs interspersed with long slender ones. Margins with irregular groups of long outstanding hairs, the

longest varying between one-third and one-half the length of the antenna. Pores circular and very numerous; these are of two sizes: the larger (fig. 5, *a*) being twice the diameter of the others. Antennae (fig. 5, *b*) of eleven segments; terminal segment much the longest but scarcely wider than the preceding one.

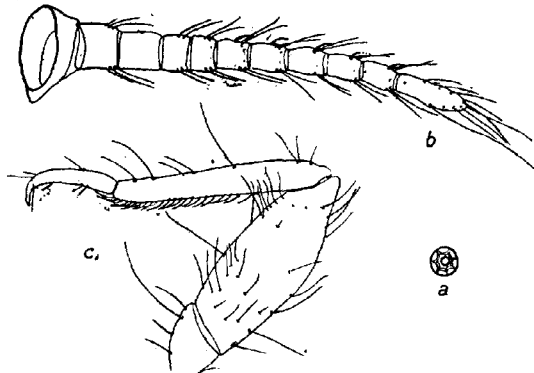


Fig. 5. *Icerya sulfurca* var. *pattersoni*, Newst., nov., ♀;
a, pore; b, antenna; c, leg

Legs (fig. 5, *c*) long; femur very short.; claw faintly bidentate, digitules simple hairs; underside of tibia very hairy. Eyes truncate. Stigmata large, slightly longer than the tarsus.

GOLD COAST: Aburi, on *Tectona* sp. (W. H. Patterson).

The form and arrangement of the waxen appendages are very like those in *Icerya aegyptiaca*, Doug., but the bright pale yellow colour is distinctive and the structural details differ.

***Margarodes buxtoni*, sp. nov.**

Female, adult. Form rather elongated and very tumid. Derm almost completely covered with a layer of white, mealy secretion. Colour in alcohol, dull brownish-crimson. After maceration in KOH the body assumes a broadly ovate form (fig. 6, *a*). Derm, on both surfaces, finely but markedly pubescent, the individual hairs relatively long and exceedingly slender. Pores (fig. 6, *f*) circular, with a central opening and numerous minute ones surrounding it; these organs are almost as numerous as the hairs, more especially so on the terminal segments of the abdomen. Antennae (fig. 6, *b*) short, stout, and widest proximally, composed of eight segments, each (with the exception of the last) with a well-defined chitinous band; distal segment with several minute stout spines, and two groups of long fine slender hairs; the remaining segments are apparently nude, but of this one cannot be quite certain, as the innumerable hairs on the surrounding integument are lying superimposed over a great portion of the antennal segments. Anterior leg (fig. 6, *c*) large, stout, and more than twice the size of the other limbs; claw densely chitinated and distinctly articulated with the exceedingly short tarsal segment; tibio-tarsal articulation well defined, and immediately below this is a

distinct group or tuft of long fine hairs. Posterior legs (fig. 6, *d*) not differing materially from the intermediate pair; claws distinctly articulated; digitules presented by slender hairs. Eyes well developed, truncate, and placed considerably below the antennae (see fig. 6, *a*). Thoracic stigmata (fig. 6, *e*) large and somewhat reniform in outline; outer lateral lobe-like extension with a group of circular pores; abdominal stigmata present on the first and second segments only; these organs are represented by minute circular orifices, external to which is a roughly horse-shoe-shaped thickening of the body wall. Anal orifice circular;

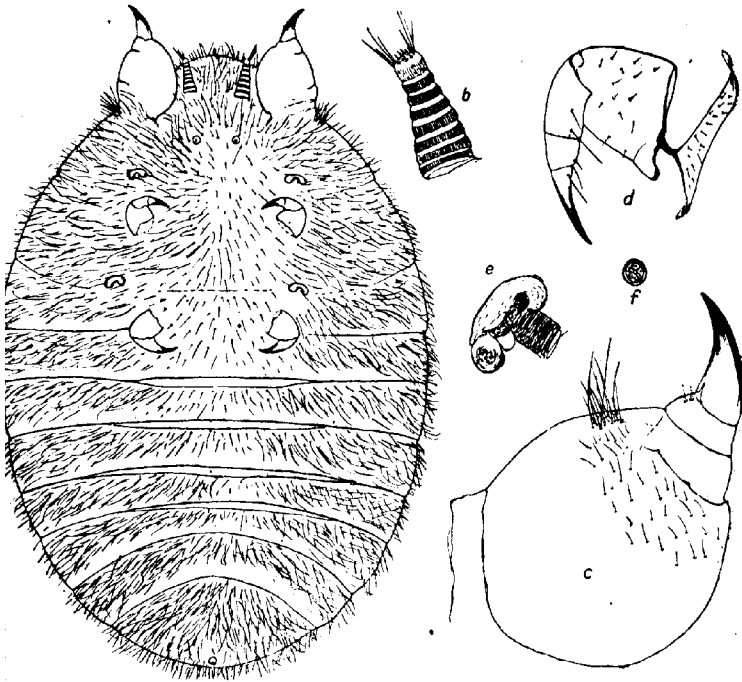


Fig. 6. *Margarodes buxtoni*, Newst., sp. n., ♀; *a*, ventral view of a specimen cleared in potash; *b*, antenna; *c*, front leg; *d*, posterior leg; *e*, stigma; *f*, pore.

ing strongly chitinised, with a disc-like structure at the distal margin. Vaginal orifice nearly opposite the anal opening. Length, 5.7 mm.; width, 4.3 mm.; length of front legs, 1 mm.

Male (fig. 7, *a*). Colour of dried specimens dark piceous; when placed in potash, sh dark crimson. Wings hyaline; costa pale crimson, darkening distally; veins, which there are traces of three, faintly indicated; outline variable in the two samples before me; in one the wing is slightly longer and narrower than the other. Subterminal segment of the abdomen with a dense tuft or pencil of fine white silkyaments. Antennae (fig. 7, *b*) of nine segments, and finely pubescent; distal segment

much the longest, and furnished near the tip with a minute circular sensorium; articulations of the last four segments with relatively broad and clear integument. Eyes large, compound; a single prominent ocellus on the proximal edge of each of the compound eyes. Sculpturing of thorax doubtful, but apparently with prominent rounded gibbosities. Anterior legs (fig. 7, *d*) much shorter and more markedly robust

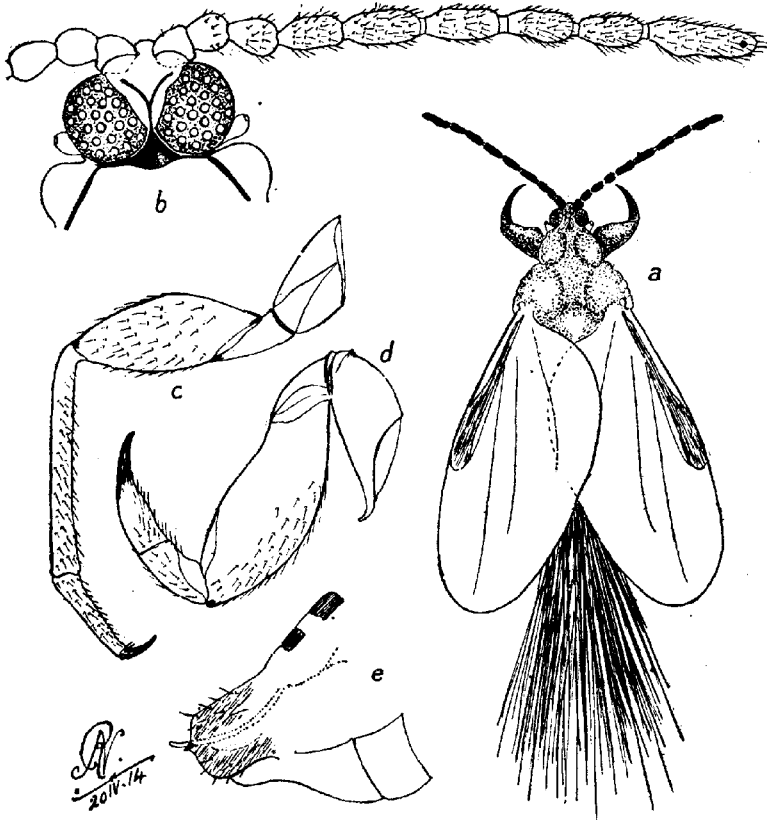


Fig. 7. *Margarodes baxtoni*, Newst., sp. n., ♂; *a*, dorsal view, from a dried specimen; *b*, head and antenna; *c*, hind leg; *d*, front leg; *e*, pygidium, lateral view.

than the others; tarsus and claw united, the latter strong, stout and densely chitinated; femur, tibia and tarsus with fine hairs. Posterior leg (fig. 7, *c*) well developed; the tibia a little more than twice the length of the tarsus; claw distinctly articulated; femur, tibia and tarsus clothed with fine hairs. Terminal segment (fig. 7, *e*) broad and somewhat quadrate, with a distinct median angular projection; intromittent organ slender and cylindrical. Owing to the density of the chitin the special groups of

lands from which the tuft of silky filaments arise are not traceable. Length, inclusive of the anal tuft of filaments, 4.5 mm.; exclusive of the filaments, 2.5 mm.

ALGERIA: El Kantora, 13.iv.13, 1♀, 2♂♂ (*P. A. Buxton*).

Mr. E. E. Green, to whom I forwarded the above description and drawings, considers that "this *Margarodes* is undoubtedly a new species. In its hairy integument it approaches my *M. niger*, but that species has limbs of a very different form."

***Stictococcus gowdeyi*, Newst.**

SOUTHERN NIGERIA: Agege; on young shoots of cacao, invariably protected by the ant *Oecophylla*, 1915 (*Dr. W. A. Lamborn*).

These examples differ from the type lot of specimens by being of a rich dark translucent crimson or of a translucent olivaceous yellow, sometimes with a trace of crimson. They are, in all probability, young adults which had not acquired the permanent colour of more mature examples.

***Stictococcus intermedius* sp. nov.**

Female, adult. General facies as in *L. sjöstedti*, Ckll. Pseudo-margin with a regular series of short, deep, sharply defined and slightly radial grooves, giving the extreme edge a finely crenulated appearance, as if marked by a roulette; midway between

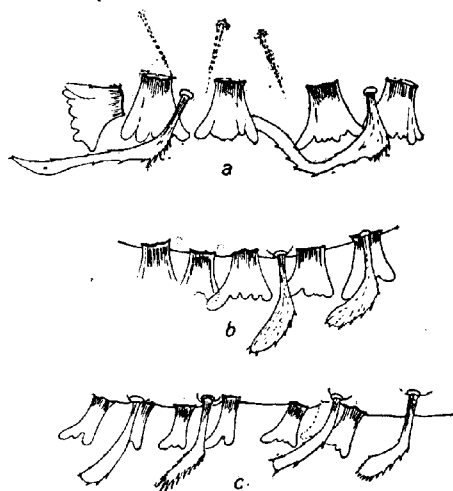


Fig. 8. *Stictococcus intermedius*, Newst., sp. n.; marginal spines of: a, adult ♀; b, second stage ♀; c, larva at period of ecdysis.

The median line and the roulette border is an irregular row of deep, clearly defined pits—seven to eight on either side. Colour pale to dark castaneous or piceous, with the integument polished. Marginal spines, (fig. 8, a) of two distinct forms: (1) broad and irregularly digitate, and (2) very long, somewhat contorted, broad and

flat, geniculated, and finely spinose; just within the margin is a series of long, slender, simple spines. The young adults are reddish buff in colour, with the pits and hollows of the roulette border piceous or dark castaneous. Length, 3-4 mm.

Female, second stage. Short ovate, flat, with the sides slightly raised. Colour pale reddish-buff. Marginal spines (fig. 8, *b*) broadly digitate and similar to those in the adult, but usually with one of the lateral projections more pronounced than the rest; and a broad, flat, falciform and spinose one alternating more or less with the others.

Larva (at period of ecdysis) with the marginal spines as shown in fig. 8, *c*.

GOLD COAST: Aburi, on cacao, ? 1913 (*W. H. Patterson*).

Separable from *S. sjöstedti*, Ckll., by the form of the marginal spines (in all stages) and by the sculpturing of the dorsum in the adult female.

***Stictococcus multispinosus*, Newst.**

Male puparium. Like that of *Kermes quercus* (Linn.); a white, felted, elongated sac, and very brittle. Two examples were found wedged in between the old adult females. Neither was quite perfect; one contained a propupa, the other was empty.

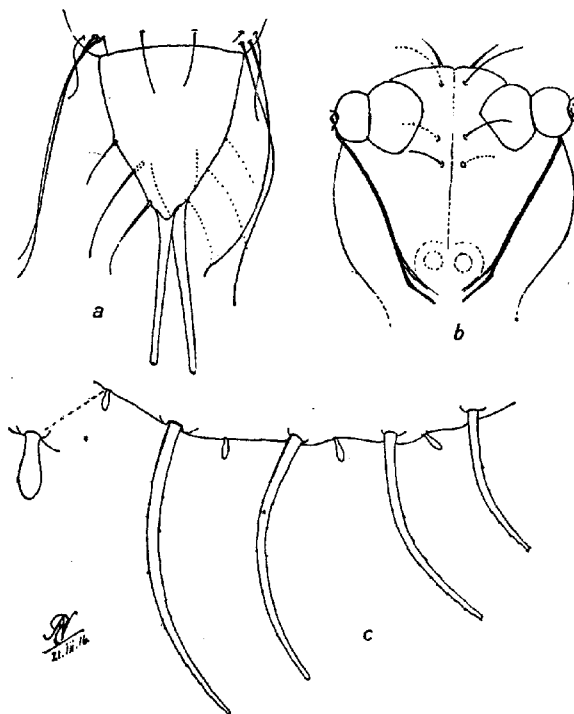


Fig. 9. *Stictococcus multispinosus*, Newst., sp. n.:
a, terminal segment of ♂; b, head of ♂; c, marginal
spines of larva.